

WHAT IS CLAIMED IS:

1. A magnetic head comprising:

a pair of magnetic bodies comprising respective first and second medium facing surfaces, respective first and second rear surfaces opposite to the medium facing surfaces, and respective inner side surfaces, the inner side surfaces facing each other; and

a magnetic gap disposed between the inner side surfaces and comprising third medium facing surface coplanar with the first and the second medium facing surfaces and third rear surface coplanar with the first and second rear surfaces;

one of the inner side surfaces satisfying relationships of

$x = G1/2$  with respect to  $0 \leq y \leq TH$ , and

$0.1 \cdot \tan\{2(x-G1/2)\} + TH \leq y \leq 5 \cdot \tan(2(x-G1/2)) + TH$  with respect to  $TH \leq y$

where  $x$  represents X-coordinate of the one of the inner side surfaces and  $y$  represents Y-coordinate of the one of the inner side surfaces, the X-axis extends from a center of the third medium facing surface toward a center of the first or the second medium facing surface, the Y-axis extends from the center of the third medium facing surface toward the third rear surface, the Y-axis is substantially perpendicular to the X-axis, and  $G1$  and  $TH$  respectively represent constants.

2. A magnetic head as set forth in claim 1, wherein  $y$  continuously varies from a point,  $y=TH$ , to the first or second rear surface as  $x$  continuously increases from a point,  $x=G1/2$ .

3. A magnetic head as set forth in claim 1, wherein the pair of magnetic bodies comprise protruding portions of magnetically soft substance on the first and second medium facing surfaces on both sides of the magnetic gap.

4. A magnetic head as set forth in claim 1, wherein the pair of magnetic bodies are magnetic yokes, and the magnetic

head comprises a magnetoresistance effect element arranged on the first and second rear surfaces and disposed over the magnetic gap.

5. A magnetic head as set forth in claim 1, wherein the pair of magnetic bodies are magnetic cores, and the magnetic head further comprises a rear yoke of magnetically soft substance provided on the first and second rear surfaces and disposed over the magnetic gap, and a recording coil formed in the magnetic gap.

6. A magnetic recording head comprising:  
a pair of magnetic bodies spaced apart with a magnetic gap therebetween and comprising respective medium facing surfaces and respective rear surfaces opposite to the medium facing surfaces, one of the pair of magnetic bodies comprising a protruding portion, the protruding portion being tapered off toward the medium facing surface;  
a recording coil provided in the magnetic gap; and  
a rear magnetic body of magnetically soft substance disposed on the rear surfaces and disposed over the magnetic gap.

7. A magnetic reproducing head comprising:  
a pair of magnetic bodies spaced apart with a magnetic gap therebetween and comprising respective medium facing surfaces and respective rear surfaces opposite to the medium facing surfaces, one of the pair of magnetic bodies comprising a protruding portion, the protruding portion being tapered off toward the medium facing surface; and  
a magnetoresistance effect element disposed on the rear surfaces and disposed over the magnetic gap.

8. A method for producing a magnetic head, comprising:  
forming a magnetic body on a substrate, the magnetic body comprising a principal plane facing the substrate and a rear plane opposite to the principal plane;

applying beam to the rear plane of the magnetic body and forming a portion defining a hole extending from the rear plane to the principal plane;

forming a magnetic gap in the hole; and

separating the magnetic body and the magnetic gap from the substrate and forming medium facing surface substantially coplanar with the principal plane.

9. A method for producing a magnetic head as set forth in claim 8, wherein the beam is focused ion beam.

10. A method for producing a magnetic head, comprising: forming an insulating film on a substrate;

applying focused ion beam to the insulating film in a direction toward the substrate, and forming a portion defining first and second trenches in the insulating film;

filling magnetic substance in the first and second trench to form a pair of magnetic bodies;

forming a recording coil in the insulating film between the pair of magnetic bodies; and

forming a second magnetic body on the pair of magnetic bodies and the recording coil.

11. A magnetic reproducing system including the magnetic head as set forth in claim 4 as a reproducing head.

12. A magnetic recording system including the magnetic head as set forth in claim 5 as a recording head.

13. A magnetic recording system including the magnetic recording head as set forth in claim 6.

14. A magnetic reproducing system including the magnetic reproducing head as set forth in claim 7.